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09/104,947	06/25/1998	KENT J. FORBORD	1169.12-0314	4927

7590

07/16/2003

JENNIFER M. BUENZOW , SEAGATE TECHNOLOGY LLC
INTELLECTUAL PROPERTY DEPT SHK2LG
1280 DISC DRIVE
SHAKOPEE,, MN 55379-1863

EXAMINER

KLIMOWICZ, WILLIAM JOSEPH

ART UNIT PAPER NUMBER

2652

DATE MAILED: 07/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/104,947

Applicant(s)

FORBORD, KENT J.

Examiner

William J. Klimowicz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 May 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-10,15-17 and 36-51 is/are pending in the application.
- 4a) Of the above claim(s) 8-10 and 15-17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 36-51 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114 was filed in this application after appeal to the Board of Patent Appeals and Interferences, but prior to a decision on the appeal. Since this application is eligible for continued examination under 37 CFR 1.114 and the fee set forth in 37 CFR 1.17(e) has been timely paid, the appeal has been withdrawn pursuant to 37 CFR 1.114 and prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on May 27, 2003 has been entered.

Claim Status

Claims 8-10, 15-17 and 36-51 are currently pending.

Claims 1-7, 11-14 and 18-35 have been cancelled.

Claims 8-10 and 15-17 are withdrawn from further consideration by the Examiner, 37 CFR 1.142(b), as being drawn to a non-elected species.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 44, 45 and 50 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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With regard to claim 44, the phrase “wherein the motor rotates the disc at a substantially greater speed in response to a power input as compared to a storage assembly comprising a diameter defined by a ratio greater than 0.88” is vague and ambiguous.

More concretely, it is unclear, in light of the instant specification, as to what is considered a substantially greater design speed. Is it 10 percent above an arbitrary design speed, 5 percent, 25 percent, 50 percent, 100 percent? The instant specification provides no definition or adequate description which would provide any basis for determining the metes and bounds of such a claim limitation.

With regard to claim 45, the phrase “the motor rotates the disc at a substantially greater speed in response to a power input whereby the data storage assembly operates with substantially the same heat as compared to a storage assembly comprising a diameter defined by a ratio greater than 0.88” is vague and ambiguous.

Similarly, it is unclear, in light of the specification, as to the scope of “substantially the same heat” requirements. The specification is completely silent with regard to any definition, express or otherwise implied, that would allow a meaningful understanding of “substantially similar.” Is it 10 percent differential, 5 percent, 25 percent, 50 percent 100 percent? The instant specification again affords no definition or adequate description which would provide any basis for determining the metes and bounds of such a claim limitation.

This rejection is also applicable to claim 50 (lines 4-5) which recites ambiguous limitations as applied to “substantially similar operating temperatures” and “substantially similar power levels.” There is no basis for determining what is substantially similar, when the instant specification is consulted.

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The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 36-51 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

With regard to claim 36, lines 6-8, the phrase “at least one data storage disc comprising a diameter defined by a ratio of the disc diameter to the housing width being within the range of 0.65 to 0.88” has no support in the disclosure as originally filed. More concretely, the original specification discloses a disk having a diameter of 84mm and a disk drive width of 101.6mm. See, e.g., page 10, 2nd paragraph; page 17, line 14; page 18, lines 26-28; original claims 2 and 4. It is worth noting that the original disclosure references only a disc having a diameter of 84 mm in association with a housing width of 101.6 mm, wherein at each and every recitation of the disc diameter and housing width, the recitations of 84 mm and 101.6 mm are exact. There is no “approximately 84 mm” and/or approximately 101.6 mm ever recited in the original disclosure. Thus, while there is support for a ratio of the disc diameter to the housing width being 0.83 (84 mm divided by 101.6 mm, rounded to two decimal places), there is a complete lack of support for the newly claimed range of “0.65 to 0.88.” In fact, the newly recited range now claimed by the Applicant includes a lower limit that is apparently derived from an attempt to obviate an art

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rejection to Takatsuka et al (JP 4-205776 A), and not in any way from the disclosure as originally filed.

Similarly, claims 49, 50 and 51 containing nearly identically claimed ranges are rejected for the reason noted in claim 36, *supra*.

Similarly, with regard to claim 47, the phrase "a housing comprising 3 ½ inch standard form factor ... a rotatable data storage disc comprising a diameter equal to *or less than* 84 mm" (emphasis added) has no support in the original disclosure. While there exists support for a 3 ½ inch standard form factor configuration (i.e., 101.6 mm width) associated with a data storage disc comprising a diameter equal to 84 mm, there is absolutely no support or suggestion whatsoever, to provide an even smaller disc in the 3 ½ inch standard form factor configuration.

With regard to claims 42, 46, 48 and 50, the recitation of "a design speed of at least 10,000 rpm" finds no support for any speed over 10,000 rpm in the original disclosure. See, e.g., page 11, line 3 of the instant application. The claim could be supported if recited to state "a design speed up to 10,000 rpm" but not for a range that is above 10,000 rpm, for which no support can be found in the original disclosure.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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Claims 36 and 51 are rejected under 35 U.S.C. 102(b) as being anticipated by Takatsuka et al. (JP 04-205776 A).

As per claims 36 and 51, Takatsuka et al. (JP 4-205776 A) discloses a data storage assembly comprising: a housing (1, 14) comprising a standard form factor configuration (e.g., 5 ¼ - which has a standard known form factor width of 146.05 mm) associated with a standard width, length and height of the housing (1, 14); and a data storage device supported in the housing (1, 14) comprising: at least one data storage disc (9) comprising a diameter defined by a ratio of the disc diameter to the housing width being within the range of 0.65 to 0.88 (a 3.5 inch diameter disc - corresponding to 95 mm; and a form factor housing size of a standard drive of 5 ¼ - corresponding to a standard width of 146.05 mm, yields a ratio of 0.65), the at least one disc (9) operably coupled to a single spindle (4); and a head/ actuator assembly (6, 7) for reading data from and writing data to a selected ones of the discs (9).

Additionally, as per claim 51, a standard form factor configuration associated with a standard width, length and height, and a data storage device supported in the housing adapted to receive a rotatable data storage disc comprising a diameter defined by a ratio of the disc diameter to the housing width being greater than or equal to 0.89 (e.g., a 5 ¼ disc within the form factor for a 5 ¼ disk drive - a ratio of 0.89, rounded to two decimal places, since a 5.25 inch disc has a diameter of 130 mm, and a standard housing that houses such a disk, has a standard width of 146.05 mm), wherein the 3.5 inch disk of Takatsuka et al. (JP 4-205776 A) is defined by the ratio of the disc diameter to the housing width being less than or equal to 0.88 and greater than 0.65, as discussed, *supra*.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 37-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takatsuka et al. (JP 04-205776 A).

See the description of Takatsuka et al. (JP 04-205776 A) in the preceding paragraph, *supra*.

With regard to claims 37, 40, 41 and 47 although Takatsuka et al. (JP 04-205776 A) does not expressly show a standard 3 ½ inch configuration disk drive (low profile or half-high), Official notice is taken that such disk drive standard configurations (low profile or half-high) are notoriously old and well known in the art.

Given the teaching of Takatsuka et al. (JP 04-205776 A), i.e., providing smaller than maximum allowable diameter disks within disk drive housings constructed for maximum allowable diameter disks, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teachings of providing smaller sized diameter disk within a disk drive housing built for larger diameter disks, as being applied to a 3 ½ inch disk drive (low profile or half-high).

The rationale is as follows: one of ordinary skill in the art at the time the invention was made to provide the teachings of providing smaller sized diameter disk within a disk drive housing built for larger diameter disks, as being applied to a 3 ½ inch disk drive (low profile or

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half-high) in order to provide the benefits espoused by Takatsuka et al. (JP 04-205776 A), including providing cheaper disks, reducing the size of the overall HDA, whereby the PCB packaging dimensions can be made larger; HDA sway space can be made larger, and the weight/inertial moment and gyro moment of the motor bearing becomes smaller. See page 14, second paragraph of enclosed English translation.

Similarly, as per claims 38, 39 and 47, although Takatsuka et al. (JP 04-205776 A) does not explicitly disclose wherein each of the magnetic recording discs has a diameter of 84 mm (i.e., smaller than 95 mm as per claim 38), given the teaching of Takatsuka et al. (JP 04-205776 A), i.e., providing smaller than maximum allowable diameter disks within disk drive housings constructed for maximum allowable diameter disks, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teachings of Takatsuka et al. (JP 04-205776 A) of providing smaller sized diameter disk within a disk drive housing built for larger diameter disks, as being applied to an 84 mm disk.

The rationale is as follows: one of ordinary skill in the art at the time the invention was made to provide a smaller sized diameter disk of 84 mm within a disk drive housing built for larger diameter disks, (a concept already taught by Takatsuka et al. (JP 04-205776 A) for the reasons disclosed by Takatsuka et al. (JP 04-205776 A) and discussed, *supra*) in order to provide the benefits espoused by Takatsuka et al. (JP 04-205776 A), including providing cheaper disks, reducing the size of the overall HDA, whereby the PCB packaging dimensions can be made larger; HDA sway space can be made larger, and the weight/inertial moment and gyro moment of the motor bearing becomes smaller. See page 14, second paragraph of enclosed English translation.

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Also, as per claims 42, 46 and 48, although Takatsuka et al. (JP 04-205776 A) does not explicitly disclose wherein the operational design speed of the spindle motor is operational at 10,000 rpm, Official notice is taken that such design speeds are notoriously old and well known in the art.

Moreover, given the teaching of Takatsuka et al. (JP 04-205776 A), i.e., providing smaller than maximum allowable diameter disks within disk drive housings constructed for maximum allowable diameter disks, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teachings of Takatsuka et al. (JP 04-205776 A) of providing smaller sized diameter disks within a disk drive housing built for larger diameter disks, as being applied to spindle motor with an operational design speed of 10,000 rpm.

The rationale is as follows: one of ordinary skill in the art at the time the invention was made to provide the teachings of Takatsuka et al. (JP 04-205776 A) of providing smaller sized diameter disks within a disk drive housing built for larger diameter disks, as being applied to spindle motor with an operational design speed of 10,000 rpm (such speeds are now conventional) in order to provide the benefits espoused by Takatsuka et al. (JP 04-205776 A), including providing cheaper disks, reducing the vertical height and size of the overall HDA, whereby the PCB packaging dimensions can be made larger; HDA sway space can be made larger, and the weight/inertial moment and gyro moment of the motor bearing becomes smaller, within a conventionally rated 10,000 rpm disk drive. Additionally, as is notoriously old and well known, higher disk operating speeds allow for reduce disk latency and faster retrieving of data from a disk within a disk drive.

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Additionally, with regard to claim 43, Takatsuka et al. (JP 04-205776 A) does not expressly disclose a prescribed number of disks within his drive, as being 6, Official notice is taken that the number of disks used within a disk drive is based on the desired drive capacity for information, a concept that is notoriously old and well known in the art.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the smaller than maximum allowable diameter-disk disk drive of Takatsuka et al. (JP 04-205776 A) with less than the eight disks, such as six disks.

The rationale is as follows: one of ordinary skill in the art would have been motivated to provide the smaller than maximum allowable diameter-disk disk drive of Takatsuka et al. (JP 04-205776 A) with less than the eight disks, such as six disks as set forth in claim 43 such that by providing less than eight disks, such as six disks in order to reduce the costs (less disks); concepts which are well known, established and appreciated by one having general knowledge within the disk drive art.

Additionally, it is noted that claims 44 and 45 are inherently met by the disclosure of Takatsuka et al. (JP 4-205776 A) since a disk having a smaller diameter for use in a disk drive configuration intended for a larger disc, will spin faster and/or produce less heat for the same given amount as a larger disc, since the inertia of the reduced diameter disc is smaller.

With regard to claims 49 and 50, see the discussion of claim 36, *supra*.

Absent a showing of criticality (i.e., unobvious or unexpected results), the 84mm sized diameter disk and a 10,000rpm rated disk speed, is considered to be within the level of ordinary skill in the art, given the teachings of Takatsuka et al. (JP 04-205776 A), i.e., providing smaller

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than maximum allowable diameter disk within disk drive housings constructed for larger diameter disks.

That is to say, Takatsuka et al. (JP 04-205776 A) teaches a *result-effective variable*; decrease disk diameter size within a disk drive built for larger disks, provide larger packaging PCB dimensions, increased HDA sway space and longer motor bearing life.

The prosecution history as a whole does not point to any “unexpected” results associated with a 84mm diameter disk, as opposed to any other disk smaller than a 95mm diameter disk, a 10,000 rpm spindle motor speed and a 3 ½ inch disk drive configuration.

Additionally, the law is replete with cases in which when the mere difference between the claimed invention and the prior art is some range, variable or other dimensional limitation within the claims, patentability cannot be found.

It furthermore has been held in such a situation, the Applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range. *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

Moreover, the instant disclosure does not set forth evidence ascribing unexpected results due to the claimed dimensions. See *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338 (Fed. Cir. 1984), which held that the dimensional limitations failed to point out a feature which performed and operated any differently from the prior art.

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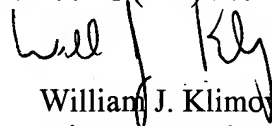
Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William J. Klimowicz whose telephone number is (703) 305-3452. The examiner can normally be reached on Monday-Thursday (6:30AM-5:00PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (703) 305-9687. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.


William J. Klimowicz
Primary Examiner
Art Unit 2652

WJK
July 11, 2003